

WEB-BASED PUZZLES FOR CHEMISTRY

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Abstract:

Instructional technology has long been foreseen as the wave of the future but has been slow to become a reality. While video game and productivity software markets thrive and continue to progress, the use of technology for educational purposes has yet to make a large impact.

Areas of special interest for educators are puzzles and games. Crossword puzzles and word-searches are often employed to teach students the technical vocabulary needed to move on to higher conceptual levels. Logic puzzles are another tool that educators use to allow students to experience more conceptual learning. Furthermore, puzzle-based chemistry labs are emerging as a way to avoid the 'cookbook' approach.

We have created unique educational software that tailors puzzles to fit the instructional needs of general chemistry students. All components are web-accessible and contain graphical user interface (i.e. clickable buttons, menus, links). Electronic grading, immediate feedback, and randomization are also features of the instruction.

We have prepared...

- 1) Computer-based crossword puzzles as an engaging way for students to master technical vocabulary prior to lecture.
- 2) Computer-based periodic table puzzle as a way for students to acquire knowledge of elemental properties and concepts of periodicity.
- 3) Puzzle-based 'virtual lab' experiment as a way for students to understand qualitative chemical analysis. This educational software includes actual video images of precipitate reactions.

The components will be demonstrated, and their uses discussed. Evaluation data will also be presented.